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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/694,763

10/29/2003

Mohammad Shahanshah Akhter

PAT 813-2 US

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08/09/2006

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EXAMINER

TRAN, TUAN A

ART UNIT

PAPER NUMBER

2618

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,763

Applicant(s)

AKHTER ET AL.

Examiner

Tuan A. Tran

Art Unit

2682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 11-16, 20 and 21 is/are rejected.
- 7) ☒ Claim(s) 8-10, 17-19 and 22-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-3, 5-7, 11-16 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Aman et al. (6,192,088).

Regarding claim 1, Aman discloses a frequency offset controller (See fig. 1) for correcting a frequency offset in a transmitted signal, the offset equivalent to a phase rotation of the transmitted signal, the controller comprising: a multiplier 102 having a first and second input, for receiving at the first input the transmitted signal, and for providing at an output the product of the first and second input; a frequency estimator 105, for receiving the output of the multiplier, for deriving an estimate of the frequency offset in the transmitted signal in accordance with the received multiplier output, and a signal generator 105, for receiving from the frequency estimator the estimate of the frequency offset, for generating a sinusoidal signal having a frequency determined in accordance with the received frequency offset estimate, for feeding back the generated sinusoidal signal to the second input of the multiplier to correct the phase rotation of the transmitted signal received at the first input by rotating the transmitted signal in accordance

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with the generated sinusoidal signal (See fig. 1, 4 and col. 2 lines 12-46, col. 7 lines 1-9).

Claim 12 is rejected for the same reasons as set forth in claim 1, as method.

Regarding claim 2, Aman discloses as cited in claim 1, Aman further discloses a symbol timing recovery unit 109 for receiving the output of the multiplier 102, for sampling the output of the multiplier, for generating an equalized resampled output signal (an equalized resampled output is widely known to be at a maximum eye opening in the output signal eye diagram) in accordance with the sampled output of the multiplier and for providing the resampled signal to the frequency estimator 105 (See fig. 5 and col. 7 line 9 to col. 8 line 26).

Claim 13 is rejected for the same reasons as set forth in claim 2, as method.

Regarding claims 3 and 5-6, Aman discloses as cited in claim 2. Aman further discloses a matched filter 104 (matched filter is widely known to be a low pass filter) for receiving the resampled signal from the symbol timing recovery unit 109, for filtering out-of-band noise from the received resampled signal, and for providing the filtered resampled signal to the frequency estimator 105 (See fig. 1 and col. 2 lines 12-46).

Claims 14-15 are rejected for the same reasons as set forth in claim 3, as method.

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Regarding claim 7, Aman discloses as cited in claim 1. Aman further discloses the frequency estimator 105 includes an amplitude based estimator for generating a frequency offset estimate in accordance with the amplitude of the in-phase and quadrature of the signal received by the frequency estimator 105 (See fig. 4 and col. 5 line 59 to col. 7 line 8).

Claim 16 is rejected for the same reasons as set forth in claim 7, as method.

Claim 21 is rejected for the same reasons as set forth in claim 7, as apparatus.

Regarding claim 11, Aman discloses as cited in claim 1. Aman further discloses the signal generator 105 includes a numerically controlled oscillator for generating a sinusoid signal whose frequency is the complex conjugate of the estimate of the frequency offset (See fig. 4 and col. 7 lines 1-8).

Claim 20 is rejected for the same reasons as set forth in claim 1, as method.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aman et al. (6,192,088).

Regarding claim 4, Aman discloses as cited in claim 3. However, Aman does not explicitly mention that the frequency estimator, the signal generator, the symbol timing recovery unit, and the matched filter are discrete types. Since discrete-type matched filter, symbol timing recovery unit, frequency estimator, or signal generator are widely known in the art; therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use discrete-type matched filter, symbol timing recovery unit, frequency estimator, or signal generator for the advantage of giving the designers a higher degree of freedom in selecting various types of circuit components for accommodating to their design intentions.

Allowable Subject Matter

3. Claims 8-10, 17-19 and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 8, 17-19 and 22-24, Aman discloses as cited in claims 7, 16 and 21. However, Aman fails to disclose the frequency offset estimate is generated as a function as discloses in claims 8, 17 and 22.

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Regarding claim 9-10, Aman discloses as cited in claim 7. However, Aman fails to disclose the amplitude estimator includes means to generate a filtered frequency offset estimate by averaging a plurality of previous estimates with the current estimate as specified in claim 9.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Song (6,925,132); Iwasaki (5,500,878); Bruckert et al. (5,640,431).

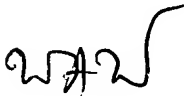
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A. Tran whose telephone number is (571) 272-7858. The examiner can normally be reached on Mon-Fri, 10:00AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tuan Tran

Matthew D. Anderson
SPE - 2618